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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/090,844	03/06/2002	Yi-Hsien Hao	108339-00131	5765

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EXAMINER	
VU, TRISHA U	

ART UNIT	PAPER NUMBER
2112	

DATE MAILED: 07/15/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/090,844	HAO, YI-HSIEN	
	Examiner	Art Unit	
	Trisha U. Vu	2112	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on 06 March 2002.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-25 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-25 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 06 March 2002 is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-25 are presented for examination.

2. Applicant is advised that should claim 18 be found allowable, claim 21 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Information Disclosure Statement

3. The information disclosure statement filed 06-05-02 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each U.S. and foreign patent; each publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered.

Please provide the copies of the following IDS documents:

1) Foreign Patent Document AK 2725573, Date: 04-12-1996, Country: France.

2) "Computer Networks", A.S. Tanenbaum, PRENTICE-HALL INT., USA, XP-002147300(1998), Sec. 5.2- Sec. 5.3, pages 309-320.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 11 and 15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 11 recites the limitation "the snooping module" in line 7 and lines 10-11. There is insufficient antecedent basis for this limitation in the claim.

Claim 15 recites the limitation "the snooping means" in line 1. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-4, 6-9, 11-14, and 19 are rejected under 35 U.S.C. 102(b) as being anticipated by Kalkunte et al. (6,031,821) (hereinafter Kalkunte).

As to claim 1, Kalkunte teaches a method of controlling data flow within a network device (buffered distributor 10), said method comprising the steps of: receiving a data packet into the network device; snooping the data packet before the data packet is stored in a memory buffer of the network device to determine a packet size based upon a number of bits per bytes within the data packet (col. 5, lines 9-15); aggregating the packet size to generate a total number of data packets within a burst if the packet size exceeds a

predetermined packet size (keep an order list of all arrivals of data packets and calculate all the packets up to the last packet) (col. 6, lines 61-67); lowering a threshold of the memory buffer to a reset threshold (calculating the pause interval P) if the total number of data packets exceeds a predetermined number of consecutive data packets (prescribed number of bytes H or threshold T); and activating a pause frame based upon the reset threshold to temporarily suspend transmission of incoming data packets to the network device (Fig. 1, col. 5 lines 27-48, col. 7 lines 11-54, and col. 7, lines 4-12).

As to claim 2, Kalkunte further teaches the network device comprises a multiple-linked chip device (col. 4, lines 1-18).

As to claim 3, Kalkunte further teaches the step of snooping includes snooping the data packet received at an input port (using a counter in MAC receiver 20 to monitor data packet received at network port 12) (col. 5, lines 9-16).

As to claim 4, Kalkunte further teaches the step of snooping includes snooping the data packet received at an expansion port (using a counter in MAC receiver 20 to monitor data packet received at network port 12) (col. 5, lines 9-16).

As to claim 6, Kalkunte teaches a device for controlling data flow within a network device, said device comprising: a snooping module (MAC 20) contained within the network device and configured to snoop a data packet before the data packet is stored in a memory buffer of the network device to determine a packet size based upon the bits per byte of the data packet (col. 5, lines 9-15); a counter (in distribution core 30) connected to the snooping module, wherein the counter adds the packet size to generate a total number of data packets within a burst if the packet size exceeds a predetermined

packet size (keep an order list of all arrivals of data packets and calculate all the packets up to the last packet) (col. 6, lines 61-67); a threshold lowering module (pause calculator 32) connected to receive instructions from the snooping module and configured to lower a threshold of the memory buffer to a reset threshold (calculating the pause interval P) if the total number of data packets exceeds a predetermined number of consecutive data packets (prescribed number of bytes H or threshold T) (Fig. 1, col. 5 lines 27-48, col. 7 lines 11-54, and col. 7, lines 4-12); and a pause activation module (flow control generator 28) configured to receive instructions from the threshold lowering module in order to trigger a pause frame based upon the reset threshold to temporarily suspend transmission of incoming data packets to the network device (col. 4, lines 34-53).

As to claim 7, Kalkunte further teaches the network device comprises a multiple-linked chip device (col. 4, lines 1-18).

As to claim 8, Kalkunte further teaches the snooping module is configured to snoop the data packet received at an input port (using a counter in MAC receiver 20 to monitor data packet received at network port 12) (col. 5, lines 9-16).

As to claim 9, Kalkunte further teaches the snooping module is configured to snoop the data packet received at an expansion port (using a counter in MAC receiver 20 to monitor data packet received at network port 12) (col. 5, lines 9-16).

As to claim 11, Kalkunte teaches a device for controlling data flow within a network device, said device comprising: receiving a data packet into the network device; snooping means (MAC 20 and part of distribution core 30) contained within the network device for snooping a data packet before the data packet is stored in a memory buffer of

the network device to determine a packet size based upon a number of bits/bytes of the data packet (col. 5, lines 9-15); aggregating means (in distribution core 30) included within the snooping means for aggregating the packet size to generate a total number of data packets within a burst if the packet size exceeds a predetermined packet size (keep an order list of all arrivals of data packets and calculate all the packets up to the last packet) (col. 6, lines 61-67); threshold reset means (pause calculator 32) connected to receive instructions from the snooping means for lowering a threshold of the memory buffer to a reset threshold (calculating the pause interval P) if the total number of data packets exceeds a predetermined number of consecutive data packets (prescribed number of bytes H or threshold T) (Fig. 1, col. 5 lines 27-48, col. 7 lines 11-54, and col. 7, lines 4-12); and pause frame activation means (flow control generator 28) connected to receive instructions from the threshold lowering module for activating a pause frame based upon the reset threshold to temporarily suspend transmission of incoming data packets to the network device (col. 4, lines 34-53).

As to claim 12, Kalkunte further teaches the network device comprises a multiple-linked chip device (col. 4, lines 1-18).

As to claim 13, Kalkunte further teaches the snooping means snoops the data packet received at an input port (using a counter in MAC receiver 20 to monitor data packet received at network port 12) (col. 5, lines 9-16).

As to claim 14, Kalkunte further teaches the snooping means snoops the data packet received at an expansion port (using a counter in MAC receiver 20 to monitor data packet received at network port 12) (col. 5, lines 9-16).

As to claim 19, Kalkunte teaches a device for controlling data flow within a multiple-linked chip device, said device comprising: a receiving module (buffer 24 and associate circuitry) for receiving the data flow within the multiple linked chip device; a snooping module (MAC 20 and part of distribution core 30) contained within the multiple-linked chip device and configured to snoop data packets before the data packets are stored in a memory buffer of the network device to determine a packet size based upon the bits per bytes of the data packets (col. 5, lines 9-15); a counter (in distribution core 30) included within the snooping module, wherein the counter adds packet size of the data packets to generate a total number of data packets within a burst if the packet size exceeds a predetermined packet size (keep an order list of all arrivals of data packets and calculate all the packets up to the last packet) (col. 6, lines 61-67); a threshold lowering module (pause calculator 32) connected to receive instructions from the snooping module and configured to lower a threshold of the memory buffer to a reset threshold (calculating the pause interval P) if the total number of data packets exceeds a predetermined number of consecutive data packets (prescribed number of bytes H or threshold T) (Fig. 1, col. 5 lines 27-48, col. 7 lines 11-54, and col. 7, lines 4-12); and a pause activation module (flow control generator 28) configured to receive instructions from the threshold lowering module in order to trigger a pause frame based upon the reset threshold to temporarily suspend transmission of incoming data packets to the multiple-linked chip device (col. 4, lines 34-53).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 5, 10, 15-18, and 20-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kalkunte et al. (6,031,821) (hereinafter Kalkunte) in view of Erimli et al. (6,405,258) (hereinafter Erimli).

As to claims 5 and 15, the argument above for claim 1 applies. However, Kalkunte does not explicitly disclose both an input port and an expansion port and the step of snooping includes snooping the data packet received at the input port and the expansion port. Erimli teaches each port switch 12 includes a plurality of ports (ports for connecting a plurality of network stations 14 and port for connecting to another port switch 12) (Figs. 1 and 6). Erimli also teaches monitoring the flow of data through the port switch 12 at these ports (e.g. ports 90a, 90b) to detect if a threshold is reached and implement a flow control technique to prevent an overflow situation (Fig. 6 and col. 15 lines 11-55). It would have been obvious to one of ordinary skill in the art at the time the invention was made to include a plurality of ports at each port switch 12 as taught by Erimli in the system of Kalkunte to expand the system's connection directly to other network stations 14 and port switch 12. Also, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include snooping the data packet at these ports to prevent an overflow situation (col. 15, lines 11-21).

As to claim 10, the argument above for claim 6 applies. However, Kalkunte does not explicitly disclose both an input port and an expansion port and the snooping module is configured to snoop the data packet received at both the input port and the expansion port. Erimli teaches each port switch 12 includes a plurality of ports (ports for connecting a plurality of network stations 14 and port for connecting to another port switch 12) (Figs. 1 and 6). Erimli also teaches monitoring the flow of data through the port switch 12 at these ports (e.g. ports 90a, 90b) to detect if a threshold is reached and implement a flow control technique to prevent an overflow situation (Fig. 6 and col. 15 lines 11-55). It would have been obvious to one of ordinary skill in the art at the time the invention was made to include a plurality of ports at each port switch 12 as taught by Erimli in the system of Kalkunte to expand the system's connection directly to other network stations 14 and port switch 12. Also, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include snooping the data packet at these ports to prevent an overflow situation (col. 15, lines 11-21).

As to claim 16, Kalkunte teaches a method of controlling data flow within a multiple-linked chip device (Fig. 1 and col. 4, lines 1-18), said method comprising the steps of: receiving the data packet into the multiple-linked chip device; snooping data packets before the data packets are stored in a memory buffer of the multiple-linked chip device to determine a packet size based upon the bits per bytes of the data packets; snooping the data packets received at a port (network port 12) connected to the multiple-linked chip to determine a packet size (col. 5, lines 9-15); aggregating the packet size of the data packets to generate a total number of data packets within a burst if the data

packet size exceed a predetermined packet size (keep an order list of all arrivals of data packets and calculate all the packets up to the last packet) (col. 6, lines 61-67); lowering a threshold of the memory buffer to a reset threshold (calculating the pause interval P) if the total number of data packets exceeds a predetermined number of consecutive data packets (prescribed number of bytes H or threshold T); and activating a pause frame based upon the reset threshold to temporarily suspend transmission of incoming data packets to the multiple-linked chip (Fig. 1, col. 5 lines 27-48, col. 7 lines 11-54, and col. 7, lines 4-12). However, Kalkunte does not explicitly disclose both an input port and an expansion port and snooping the data packet received at the input port and the expansion port. Erimli teaches each port switch 12 includes a plurality of ports (ports for connecting a plurality of network stations 14 and port for connecting to another port switch 12) (Figs. 1 and 6). Erimli also teaches monitoring the flow of data through the port switch 12 at these ports (e.g. ports 90a, 90b) to detect if a threshold is reached and implement a flow control technique to prevent an overflow situation (Fig. 6 and col. 15 lines 11-55). It would have been obvious to one of ordinary skill in the art at the time the invention was made to include a plurality of ports at each port switch 12 as taught by Erimli in the system of Kalkunte to expand the system's connection directly to other network stations 14 and port switch 12. Also, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include snooping the data packet at these ports to prevent an overflow situation (col. 15, lines 11-21).

As to claim 17, Kalkunte does not explicitly disclose the reset threshold is preprogrammed. Erimli further teaches the reset threshold is preprogrammed

(preprogrammed in PAUSE register 520b) (col. 15, lines 22-42). It would have been obvious to one of ordinary skill in the art at the time the invention was made to preprogram the reset threshold as taught by Erimli in the system of Kalkunte to avoid delay in generating a pause frame.

As to claims 18 and 21, Kalkunte further teaches the reset threshold is automatically determined based upon a capacity of data packets currently stored in the memory buffer (col. 6, lines 11-60).

As to claim 20, the argument above for claim 19 applies. However, Kalkunte does not explicitly disclose the reset threshold is preprogrammed. Erimli teaches the reset threshold is preprogrammed (preprogrammed in PAUSE register 520b) (col. 15, lines 22-42). It would have been obvious to one of ordinary skill in the art at the time the invention was made to preprogram the reset threshold as taught by Erimli in the system of Kalkunte to avoid delay in generating a pause frame.

As to claim 22, Kalkunte teaches a device for controlling data flow within a multiple-linked chip device (col. 4, lines 1-18), said device comprising: snooping means (MAC 20 and part of distribution core 30) contained within the multiple-linked chip device for snooping data packets before the data packets are stored in a memory buffer of the multiple-linked chip device to determine a packet size, wherein the snooping means snoops the data packets received at a port (network port 12) connected to the multiple-linked chip to determine a packet size of the data packets received at the port (col. 5, lines 9-15); aggregating means (in distribution core 30) included within the snooping module for aggregating the packet size of the data packets to generate a total number of data

packets within a burst if the data packet size exceed a predetermined packet size (keep an order list of all arrivals of data packets and calculate all the packets up to the last packet) (col. 6, lines 61-67); threshold reset means (pause calculator 32) connected to receive instructions from the snooping module for lowering a threshold of the memory buffer to a reset threshold (calculating the pause interval P) if the total number of data packets exceeds a predetermined number of consecutive data packets (prescribed number of bytes H or threshold T) (Fig. 1, col. 5 lines 27-48, col. 7 lines 11-54, and col. 7, lines 4-12); and pause frame activation means (flow control generator 28) connected to receive instructions from the threshold lowering module for activating a pause frame based upon the reset threshold to temporarily suspend transmission of incoming data packets to the multiple-linked chip (col. 4, lines 34-53). However, Kalkunte does not explicitly disclose both an input port and an expansion port and snooping the data packet received at both the input port and the expansion port. Erimli teaches each port switch 12 includes a plurality of ports (ports for connecting a plurality of network stations 14 and port for connecting to another port switch 12) (Figs. 1 and 6). Erimli also teaches monitoring the flow of data through the port switch 12 at these ports (e.g. ports 90a, 90b) to detect if a threshold is reached and implement a flow control technique to prevent an overflow situation (Fig. 6 and col. 15 lines 11-55). It would have been obvious to one of ordinary skill in the art at the time the invention was made to include a plurality of ports at each port switch 12 as taught by Erimli in the system of Kalkunte to expand the system's connection directly to other network stations 14 and port switch 12. Also, it would have been obvious to one of ordinary skill in the art at the time the invention was made to

include snooping the data packet at these ports to prevent an overflow situation (col. 15, lines 11-21).

As to claim 23, Kalkunte does not explicitly disclose the reset threshold is preprogrammed. Erimli further teaches the reset threshold is preprogrammed (preprogrammed in PAUSE register 520b) (col. 15, lines 22-42). It would have been obvious to one of ordinary skill in the art at the time the invention was made to preprogram the reset threshold as taught by Erimli in the system of Kalkunte to avoid delay in generating a pause frame.

As to claim 24, Kalkunte further teaches the reset threshold is automatically determined based upon a capacity of data packets currently stored in the memory buffer (col. 6, lines 11-60).

7. Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lam et al. (6,553,027) (herein after Lam) in view of Erimli et al. (6,405,258) (hereinafter Erimli).

As to claim 25, Lam teaches data flow within a network device (10) comprising a plurality of network switching chips (12) cascaded together to effectively form a single network switch with a plurality of ports from all the cascaded chips (Fig. 1, abstract, and col. 2, lines 38-57). However, Lam does not explicitly disclose predicting a future flow of a chip based upon a current flow of the chip and another chip, and determining whether the future flow will cause a memory buffer of the chip to become saturated. Erimli teaches predicting a future flow of a port based upon a current flow of the port and other ports of the network (detecting future flow based on network traffic to program

values into threshold registers 500a, 500b) (col. 14, lines 29-47) and determining whether the future flow will cause a memory buffer of the port to become saturated (col. 15, lines 11-42). It would have been obvious to one of ordinary skill in the art at the time the invention was made to implement predicting a future flow of a port based upon a current flow of the port and other ports of the network and determining whether the future flow will cause a memory buffer of the port to become saturated as taught by Erimli in the system of Lam to prevent an overflow situation.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure, as the art discloses controlling data flow within a network device:

US Patent	6,115,356	Kalkunte et al.
US Patent	6,295,281	Itkowsky et al.
US Patent	5,991,304	Abramson
US Patent	6,393,028	Leung
US Patent	6,167,029	Ramakrishnan

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Trisha U. Vu whose telephone number is 703-305-5959. The examiner can normally be reached on Mon-Thur and alternate Fri from 7:00am to 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Rinehart can be reached on 703-305-4815. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Trisha U. Vu
Examiner
Art Unit 2112

uv

SUMATI LEFKOWITZ
PRIMARY EXAMINER